MMS ENVIRONMENTAL STUDIES PROGRAM: ONGOING STUDIES

Region: Alaska

Planning Areas: Chukchi Sea

Title: Current and Historic Distribution and Ecology of Demersal Fishes in the Chukchi Sea Lease Area (AK-93-48-67)

MMS Information Needs to be Addressed: This study will provide information on the past and present fish presence, distribution, and abundance needed to evaluate and mitigate the effects of offshore development. MMS analysts and decision makers will use the information from this study in NEPA analysis and documentation for Lease Sale(s), EP's and DPP's, and in post-sale and post-exploration decision making, mitigation, and monitoring in the Chukchi Sea.

Total Cost: $342,810 **Period of Performance:** FY 2007-2010

Conducting Organization: CMI, UAF

MMS Contact: Chief, Alaska Environmental Studies Section

Description:

Background After a two decade hiatus, Offshore Oil and Gas leasing is to commence in the Chukchi Sea. Very little historic fisheries information has been collected in the lease sale area. Like the Bering Sea, the Chukchi Sea has historically been a benthic dominated ecosystem. With arctic climate change, however, the Bering Sea is now shifting from a shallow, ice-dominated system in which bottom-dwelling fishes prevail to one more dominated by pelagic fishes. Further examination of the Chukchi Sea may indicate similar changes.

At present, we can only speculate what may be occurring in the Chukchi Sea, as there is a paucity of information about fishes in this area. The Chukchi Sea is outside the range of the NOAA Alaska Fishery Science Center regular fish trawls surveys, thus information on fishes in the Chukchi is limited to a few historic surveys. Currently the niche of benthic consumers in the Arctic, including the Chukchi Sea, is filled by seabirds and marine mammals. However, with decreasing sea ice in the Chukchi Sea, demersal fishes moving northward from the eastern Bering Sea might usurp the place of birds and mammals as benthic consumers. Without current baseline data, effects of offshore development cannot be separated from recent changes due to other factors.

This project will assemble data into a searchable database and collect additional field data to meet MMS needs.

Objectives The overall project is to document the abundance and distribution of fishes in the Chukchi Sea. Specific objectives include:

- Collect fishes and document species presence, abundance, distribution, geographic range, species diversity, species assemblages, and habitat parameters
- Determine physical and oceanographic feature (water mass) characteristics that define demersal fish habitat
- Determine physical characteristics that define juvenile and adult fish communities and compare among collection periods and with historic collections.
- Correct the identification of historical archived fish specimens for accurate comparison with the proposed collections in the Chukchi Sea Planning Area.
- Synthesize historic distribution patterns of fish species in and near the Chukchi Sea Planning Area, and compare with 2007-2008 collections.
- Incorporate both historic and current scientific fish collection data from the northeast Chukchi Sea into electronic format suitable for incorporation into the MMS database.
- Provide a basis for post-sale monitoring of fishes in the Chukchi Sea.

Methods

1. Collect new fish specimens and habitat data during July 2007 and 2008 in the northeastern Chukchi Sea aboard the *Oshoro-Maru.*
2. Correct species identification in relevant historic collections.
3. Summarize habitat occupied by species in the Chukchi Sea Planning Area from both current and historic collections.
4. Provide data on species presence and abundance from both past and present collections to MMS within a relational database suitable for GIS.

Current Status:

The participants collected data during the 2007 field season and will be repeating the surveys summer of 2008.

Final Report Due: May 2010

Publications Completed: none

Affiliated WWW Sites: http://www.mms.gov/alaska/
http://www.sfos.uaf.edu/cmi/

Revised Date: March 2008